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| 09/837,701      | 04/17/2001  | Xiaodong Li          | 005158.P007X        | 9152             |

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EXAMINER

CONTEE, JOY KIMBERLY

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2686

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/837,701

Applicant(s)

LI ET AL.

Examiner

Joy K Contee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/28/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,11-14.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1,5,7 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones IV et al. (Jones IV), U.S. Patent No. 6,657,949.

Regarding claim 1, Jones IV discloses a method for use in allocating subcarriers in an OFDMA system comprising:

allocating on at least one diversity cluster (i.e., reads on in OFDM, available bandwidth divided into a plurality of subchannels that are orthogonal in frequency domain and inherently diversity applies) of subcarriers to a first subscriber (col. 4, lines 16-24); and

allocating at least one coherence cluster (i.e., reads on employing redundancy, wherein data is coherently combined across redundant subsets within each tone set (or frequency symbol) to a second subscriber (col. 8, lines 49-57).

Regarding claim 5, Jones IV discloses the method defined in claim 1 wherein using one diversity cluster includes channel coding across subcarriers (i.e., reads on

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subchannels of divided bandwidth) of the one diversity cluster, as it is inherent that multicarrier transmission exists in an OFDM system (col.4,lines 16-21 and lines 50-57) .

Regarding claim 7, Jones IV discloses the method defined in claim 1 wherein subcarriers (subchannels) of one coherence cluster are within the inherent coherent bandwidth (i.e., reads on wherein antenna is combined and channels are corrected) of a channel between a base station and a subscriber (col. 8,lines 49-57).

Regarding claim 10, Jones IV discloses the method defined in claim 1 wherein the at least one diversity cluster is configured to reduce the effect of inter-cell interference (col. 8, lines 49-65).

3. Claims 26-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Baum et al. (Baum), U.S. Patent No. 5,867,478.

Regarding claim 26, Baum discloses an apparatus comprising: a subscriber (col. 5,lines 63-66); a base station including a subcarrier allocator (i.e., inherent to SC-OFDM), the base station being communicatively coupled to the subscriber (col. 7,lines 40-43); a variation detector to detect channel variation, wherein the subcarrier allocator allocates either one or more diversity clusters of subcarriers (col. 17,lines 8-22) or one or more coherence clusters of subcarriers to the subscriber based on results of channel variation detection by the variation detector (col. 3,lines 15-26 and col. 5,lines 37-61).

Regarding claims 27, Baum discloses the apparatus defined in claim 26 wherein the variation detector (i.e., #1608) is located at the base station (see Fig. 16).

Regarding claim 28, Baum discloses the apparatus defined in claim 26 wherein the variation detector (i.e., #1608) is located at the subscriber (i.e., reads on base unit/subscriber unit #1602) (see Fig. 16)

Regarding claim 29, Baum discloses the apparatus defined in claim 26 wherein the variation detector measures channel variation periodically (i.e., monitors symbols over a period of time) for each cluster (col.14,lines 24-40)

Regarding claim 30, Buam discloses the apparatus defined in claim 26 wherein the variation detector measures SINR values periodically for each cluster (col. 14,lines 24-40).

Regarding claim 31, Baum discloses the apparatus defined in claim 26 wherein the variation detector measures a power difference (i.e., reads on delay) between pilot symbols for each cluster and average the difference (i.e., reads on phase difference due to symbol timing phase) over a window of time slots (col. 19,lines 3-26).

Regarding claim 32, Baum discloses the apparatus defined in claim 31 wherein the window of time slots comprises a moving window of time slots (col. 19, lines 3-26).

Regarding claim 33, Baum discloses the apparatus defined in claim 32 wherein the window of time slots comprises four time slots (col. 14, lines 13-18).

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1,11 and 34 (thus the dependents 2-10,12-25 and 35-47,respectively) are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,4,5,11,12,18-20,24,25 and 29 of copending Application No. 09/837,337 (Patent Application Pub. No. 2003/0169681).

Independent claim 1 of the instant application claims allocating at least one diversity cluster of subcarriers to a first subscriber; and allocation at least one coherence cluster to a second subscriber. Independent claims 11 and 34 of the instant application claim determining whether a subscriber is mobile or fixed; allocating at least one diversity cluster of subcarriers to the subscriber if the subscriber is mobile and allocating at least one coherence cluster if the subscriber is fixed. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claims 1,2 and 5 of the instant application encompass the scope of claims 1,4,5,11,12,18-20,24,25 and 29 of copending Application No. 09/837,337.

In comparison, claims 1,4,5,11,12,18-20,24,25 and 29 of Application No. 09/837,337 disclose the allocating at least one cluster in one or more groups of clusters selected by a subcarrier for use with a subscriber (see independent claim 1). Claims 4

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and 5, of 09/837,337 claim wherein the clusters in each of the plurality of groups are spaced apart over bandwidth (i.e., reads on coherency) and spaced apart farther than coherent bandwidth (i.e. reads on diversity) of each channel between a base station and the subscriber. Claims 18-20, claim wherein the candidate clusters desired for use are a set of all possible clusters with SINRs relatively higher than the other clusters (i.e., inherent to diversity cluster that is spaced apart). Further, Application No. 09/738,086 claims wherein the subscriber has a fixed association with the at least one group of clusters (i.e., analogous to wherein the second subscriber comprises a fixed subscriber, claim 2 of instant application) (see claim 11 of 09/837,337). The primary difference between the two sets of claims is that 09/837,337 does not specifically state allocating at least one diversity cluster and at least one coherence cluster, for respective subscriber one and two. However, 09/837,337 suggests in the claims both diversity and coherent clusters (see claims 4,5 and 18-20, as shown above).

A person of ordinary skill in the art would conclude that the invention defined in the claims 1-25, and 34-47 in issue are an obvious variation of the invention defined in a claims 1,4,5,11,12,18-20,24,25 and 29 in copending Application No. 09/738,086.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Jung et al., U.S. Patent No. 6,307,851, discloses a system for radio transmission of digital signals.

Cimini et al., U.S. Patent No. 5,914,933, discloses a clustered OFDM communication system.

Mignone et al., CD3-OFDM: A Novel Demodulation Scheme for Fixed and Mobile Receivers, IEEE Transactions on Communications, Vol. 44, No. 9, September 1996

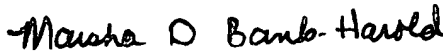
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joy K Contee whose telephone number is 703-308-0149. The examiner can normally be reached on 5:30 a.m. to 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 703-305-4379. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

  
Joy Contee

February 11, 2004

  
MARSHA D. BANKS-HAROLD  
SUPERVISORY PATENT EXAMINER  
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